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Citation for published version:

Armitage, S 2007, 'Discounts in placing pre-renounced shares in rights issues', *Journal of Business Finance and Accounting*, vol. 34, no. 7-8, pp. 1345-1369. <https://doi.org/10.1111/j.1468-5957.2007.02016.x>

Digital Object Identifier (DOI):

[10.1111/j.1468-5957.2007.02016.x](https://doi.org/10.1111/j.1468-5957.2007.02016.x)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Peer reviewed version

Published In:

Journal of Business Finance and Accounting

Publisher Rights Statement:

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In: Journal of Business Finance & Accounting, Vol. 34, 2007, p. 1345-1369.

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Discounts in placing pre-renounced shares in rights issues

Seth Armitage*

Pre-publication draft, 2006

Journal of Business Finance & Accounting 34, 2007, pp. 1345-69

Abstract

The paper presents evidence from UK rights issues on the discounts at which large blocks of new shares plus rights are sold. The shares are renounced by the shareholders entitled to them and placed with passive investors at substantial discounts of around 8% to the expected ex-rights midpoint price of the existing shares. Tests indicate that the discounts arise because of uncertainty about issuer value and inelastic demand for the shares rather than because the issuing companies are overvalued. The finding that selling renounced shares is costly removes an apparent advantage of rights issues compared with open offers and private placings.

Keywords: rights issues; open offers; private placings; offer-price discounts; long-run abnormal returns.

*University of Edinburgh Business School, 29 Buccleuch Place, Edinburgh EH8 9JS. Email: seth.armitage@ed.ac.uk.

Acknowledgements

I am grateful to Dionysia Dionysiou for research assistance and to the Department of Accountancy and Finance, Heriot-Watt University, for financial support. The paper has benefited from the comments of *JBFA* editor Peter Pope, an anonymous referee, and participants at the Erasmus University Finance Day 2005.

Discounts in placing pre-renounced shares in rights issues

1. Introduction

Until the 1990s rights issues were the dominant method by which UK listed companies issued new shares. But the use of rights issues has fallen since 1990 in favour of open offers. There are now (2006) only about 20 rights issues a year compared with an average of 132 rights issues a year during 1980-89.¹ The reasons for this change in issue practice are not fully understood. The current paper presents evidence that an apparent advantage of rights issues is illusory in many cases, especially issues by smaller companies with illiquid shares. The evidence does not establish that open offers are superior, but it does indicate that many open offers that might appear to have been more costly than the equivalent rights issue were not, in fact, more costly.

In a rights issue the new shares are issued *pro rata* to the existing shareholders, normally at a discount to the market price of around 15% to 20%. Shareholders who do not wish to take up their rights to the new shares can sell them. The offer period lasts for three weeks and the shares go ex-rights (cease to carry an entitlement to participate in the offer) at the start of this period. Although the share price will fall on the ex-rights day, due to the scrip effect of the discount, the ability to sell the rights means that the discount is not thought to impose a cost on non-subscribing shareholders.

In an open offer the shares are privately placed before the offer is publicly announced. They are then offered *pro rata* to the existing shareholders, as in a rights issue, but the shareholders can not sell their entitlements. The new shares not taken up by the existing shareholders are bought by the placees already arranged by the start of the offer period. The

¹ Source: London Stock Exchange website, Historic Statistics file. It is not clear from the data files on the Exchange's website how many open offers there are per year, as the term is not used in the files. But examination of seasoned offer prospectuses shows that open offers have largely replaced rights issues for larger offers, exceeding 5% of the issuer's existing equity. Issues smaller than 5% are usually made via a private placing.

discount is normally less than 10%; smaller than in a rights issue. But because the entitlements can not be sold, a discount means that wealth is transferred to the placees from the non-subscribing shareholders. For a typical open offer of one new share for every three existing shares, with an offer price at a discount to the market price of 8.0%, the loss per existing share for a non-subscribing shareholder is 2.0% of the share price, other things equal.² Thus, an open offer at a discount appears to be a bad choice compared with a rights issue, for non-subscribing shareholders.

However, the advantage of a rights issue as just described relies on an implicit assumption that the transaction cost of selling rights is unimportant. If the cost were zero, the market price of the right to a new share, P_{right} , would be given during the offer period by

$$P_{\text{right}} = P_{\text{exmid}} - P_{\text{offer}}; \min(P_{\text{right}}) = 0 \quad (1)$$

where P_{exmid} is the ex-rights midpoint market price of the existing shares and P_{offer} is the offer price. If P_{exmid} falls below P_{offer} during the offer period, no shareholders will subscribe who have not already subscribed, and the rights will have zero value.³

The paper shows that substantial discounts are required to sell large blocks of newly issued shares in rights issues to new investors. That is, large shareholders are only able to sell their rights at prices well below $P_{\text{exmid}} - P_{\text{offer}}$. This means that equation (1) is not correct in practice; it substantially overstates the price at which the rights can be sold on the market. The evidence is from a sample of rights issues by smaller listed companies in which large shareholders decide to pre-renounce and place their rights. They decide before the offer is publicly announced not to subscribe to the new shares, and the new shares plus rights are privately placed with investing institutions at a common price before the offer is announced.

² Assuming no change in valuation, the market price on the ex-rights day t will be given by $(P_{\text{mid},t-1}N_{\text{old}} + P_{\text{offer}}N_{\text{new}})/(N_{\text{old}} + N_{\text{new}})$, where $P_{\text{mid},t-1}$ is the midpoint price at the close of day $t-1$, P_{offer} is the offer price of the new shares, and N_{old} (N_{new}) is the number of old (new) shares.

³ In theory equation (1) is not correct, because a right is a call option with an expiry date at the end of the offer period, and $P_{\text{exmid}} - P_{\text{offer}}$ is the intrinsic value of the option only. But the time value is small as the offer period is three weeks at the outset, and we ignore it for simplicity.

The renounced blocks are very large compared with block trades of existing shares: the average size is 25% of the existing shares (median 13%). The placees are likely to be 'passive': they are not seeking to build up large stakes for the purpose of intervening in the management of the company.

The theoretical ex-rights rights price (TERP), calculated as at the day before the announcement of the issue and as at the announcement day, is used to proxy for the ex-rights midpoint price expected to prevail at the start of the offer period. The cost per share of the placing is measured by the difference between the TERP and the actual price at which the shares plus rights were placed. The average cost of placing the pre-renounced blocks is between 7.6% and 9.6% of the TERP, depending on the assumptions made. It is argued that the decisions of the large shareholders to pre-renounce their rights show that very large blocks of new shares plus rights could only have been sold on the market at discounts similar to the discounts at which the renounced blocks were privately placed.

The finding that selling large blocks of shares plus rights is rather costly means that the apparent cost advantage of rights issues over open offers for non-subscribing large shareholders is illusory. The paper shows that the non-subscribers in the sample rights issue with the median loss per share from sale of the rights would have preferred an equivalent open offer made at any discount smaller than 10.0%. The discounts in a large majority of open offers are smaller than this.

The cost of selling new shares plus rights has not previously been documented as a material cost in rights issues. A detailed report by the UK Monopolies and Mergers Commission (MMC, 1999), now called the Competition Commission, notes some concerns about the liquidity of the market for rights but concludes that rights can be sold on the market without substantial cost, except in the case of very illiquid shares. Korteweg and Renneboog (2002) find that issuers with less liquid shares are more likely to choose an open offer, but

they do not measure the costs of selling rights. Hansen (1988) suggests that the transactions costs of selling rights in the USA were appreciable, but he does not provide direct estimates of these costs, and his results have been questioned by Eckbo and Masulis (1992).

The paper goes on to consider why selling the blocks is costly, and presents evidence that the most likely reasons are uncertainty about the value of the issuer and inelastic demand for the shares. An alternative hypothesis is that the discounts arise because the issuing companies are perceived by placees to be overvalued at the time of issue. But the long-run abnormal returns following the issues with pre-renounced shares are neither consistently negative nor significant, indicating that the issuers were fairly valued. The discount is positively related to the bid-ask spread on the share and to the number of shares renounced as a proportion of the existing shares. This evidence suggests that the discount is deeper for shares which are more difficult to value and which have relatively inelastic demand. It is in line with recent findings by Altinciliç and Hansen (2003) and Corwin (2003) regarding discounts on the offer day in US firm commitment offers. The paper argues that the cost of selling very large blocks of *existing* shares to passive investors will be similar to the cost reported of selling new shares plus rights.

The next section reviews existing research on the decline of rights issues in the USA and UK. Section 3 explains how data on pre-renounced shares can be used to calculate or infer the cost of selling blocks of new shares plus rights. Section 4 describes the sample. Section 5 presents and discusses the results on the cost of selling the blocks, and Section 6 considers why this cost exists. Section 7 concludes.

2. Problems with rights issues

Rights issues had virtually ceased to be made by commercial firms in the USA by the early 1980s, despite having been substantially cheaper, in terms of fees, than the firm

commitment offers which replaced them. Several problems with rights issues have been proposed, including the costs to issuers of distributing the rights (Eckbo and Masulis, 1992); loss of market value between the announcement of the offer and the start of the offer period, perhaps due to the expected costs of selling rights (Hansen, 1988); inducements to companies from investment banks to switch to firm commitments, for which higher fees are charged (Smith, 1977); and lower liquidity in the shares after a rights issue compared with after a firm commitment offer (Kothare, 1997). There is also the problem that some shareholders will face payments of capital gains tax on the sale of their rights. The weights to attach to these problems in explaining the disappearance of rights remain uncertain.

The decline of rights issues in the UK is more recent and has received less attention. Interview and survey evidence presented in MMC (1999) and Burton et al (2005) reveals no obvious reason for the decline, nor that there is anything seriously wrong with rights issues. Armitage (2000) finds no difference between the fees for rights issues and open offers, controlling for factors influencing the fees. Korteweg and Renneboog (2002) compare characteristics across firms which have chosen a rights issue and firms which have chosen an open offer. They find that the choice of an open offer is positively related to the proportion of the equity owned by directors and to growth opportunities (which imply a smaller discount for the open offer). The choice of open offer is negatively related to the liquidity of the shares. They suggest that this is because the pressure of a large supply of rights on the market will depress the rights price, increasing the attraction of an open offer.

Barnes and Walker (2006) study the choice between rights issues and private placings. The latter differ from open offers in that the shares in a private placing are not offered pro rata to existing shareholders. Thus any discount hurts the existing shareholders, since they can not subscribe unless they are placees. Placings, like open offers, have become more common in the UK, partly because the Stock Exchange allowed placings in excess of £15m after January

1996. The authors find that placings are chosen for relatively small issues in relation to firm size, and by firms with relatively high levels of director ownership and information asymmetry. They also find that placings are made at smaller discounts to the pre-announcement market price than are rights issues.⁴

The MMC report (1999) notes the views of some brokers that illiquid shares ‘tended to trade down to a level close to the offer price’ during the offer period in rights issues (p. 76), and estimates that ‘rump’ shares plus rights not taken up by the offer close are sold at an average discount to the market price of the old shares of 1%. The report also includes a summary of a study of the market prices of rights by Credit Suisse First Boston (CSFB). The sample is all rights issues with a value in excess of £50m during 1995-97. The prices of the rights are midpoint prices at the close of trading each day, not the prices of actual trades of rights. The study finds that, on average, the midpoint price of a right is 0.5% below the price that would be expected if equation (1) held exactly. The conclusion of CSFB is therefore that rights trade at approximately their fair price, and this is also the MMC’s conclusion, except regarding ‘very illiquid shares’ (p. 40). But the use of midpoint prices means that the CSFB study is uninformative about the transaction prices at which large blocks of rights are sold. The exclusion of smaller issues, below £50m, means that the sample will have included few issues by smaller listed companies with relatively illiquid shares (only 8% of the issues studied in the current paper are larger than £50m). Also, the largest blocks will have been pre-renounced in some issues, removing most of the selling volume from the market during the offer period in these issues.

⁴ Although a smaller discount implies a greater probability that the issue is a placing (or an open offer, for that matter), the discount is unlikely to be set independently of the choice of issue method. This is because the choice of issue method affects the impact of the discount. So long as the rights have a positive value in a rights issue, a given discount will cause less loss of wealth to non-subscribers, and provide less reward to buyers of the new shares, if the issue is a rights issue than if it is a private placing or open offer.

The MMC report is more concerned with the problem that selling rights can cause the seller to pay capital gains tax than with the market for rights. An open offer avoids the tax problem. Another comparative disadvantage for a rights issue is that it will be two or three weeks slower than an open offer if an Extraordinary General Meeting (EGM) is required to authorise the issue of the new shares. The EGM, if needed, can be held after the offer period in an open offer, but must be held before the offer period in a rights issue to authorise the issue of tradable provisional allotment letters (PALs) nil-paid (ie rights). In open offers existing shareholders are invited to subscribe to the new shares but they do not receive PALs and hence they have no tradable instrument representing their entitlement.

Finally, there has been found to be a negative market reaction on average to rights issues and a positive reaction to open offers and private placings. In addition, long-run abnormal returns measured up to five years after the issue are negative for rights issues and positive for open offers (Capstaff et al, 2006). The reasons are uncertain, but one suggestion is that there is superior certification of value by the underwriter (Slovin et al, 2000) or by placees (Armitage, 2002) compared with the certification in a rights issue, leading 'high quality' (undervalued) firms to select open offers and placings. However, this suggestion does not explain why rights issues have become scarce in the UK.

The current paper provides direct evidence on the cost of selling shares plus rights that is so far lacking in the above research. The evidence provides support for the suggestions of Hansen (1988) and Korteweg and Renneboog (2002) that the cost of selling rights is a material cost of the rights issue method for issues with large non-subscribing shareholders.

3. Method

The prospectuses of about 35% of rights issues in the 1990s include a statement in the letter from the Chair of the Board that one or more shareholders has undertaken not to

subscribe to some or all of the shares to which they are entitled. We refer to such shares as pre-renounced shares. If the pre-renounced shares sum to a proportion greater than 25% of the issue, the shares and the rights to them are normally privately placed with investors before the offer is announced. The alternative for a non-subscriber is to sell the rights on the market via the normal process during the offer period. The normal process is to sell the rights to a market maker via a broker. The London Stock Exchange introduced an electronic order book in 1997 but the shares of the companies in our sample were not liquid enough to have been traded via the order book.

In the case of a company listed on the Main Market of the Exchange, the conditions of Listing Rule 4.17 apply to pre-renounced shares which are privately placed:

- (a) the placing must relate to at least 25% of the maximum number of securities offered, or such lesser amount as may be agreed by the UK Listing Authority if it is satisfied that a requirement of at least 25% would be detrimental to the success of the issue;
- (b) the placees must be committed to take up whatever is placed with them;
- (c) the price paid by the placees must not exceed the price at which the securities the subject of the rights issue are offered by more than one half of the ... difference between the offer price and the theoretical ex-rights price ...

(*Listing Rules*, 2002). The same conditions were in force throughout the sample period. The Listing Rules do not apply to companies listed on the Alternative Investment Market (AIM) or, before April 1995, on the Unlisted Securities Market (USM). One fifth of the sample was listed on the USM or AIM, but the practice regarding pre-renounced shares appears to have been the same as for Main Market companies.

In many cases the placing price of the rights, P_{right} , is stated in the prospectus. In the remaining cases the regulatory maximum placing price can be inferred from Rule 4.17(c). We

calculate $TERP_{AD-1}$, the theoretical ex-rights price as at the day before the announcement of the issue, adjusted for the next dividend per share if the new shares are not entitled to this dividend:

$$TERP_{AD-1} = [P_{mid,AD-1}N_{old} + (P_{offer} + Div)N_{new}]/(N_{old} + N_{new}) \quad (2)$$

where $P_{mid,AD-1}$ is the midpoint market price of the old shares as at the close of the day before the announcement, N_{old} is the number of old shares, N_{new} is the number of new shares,⁵ and Div is the next dividend per share net of advance corporation tax if the new shares are *not* entitled to the next dividend. $Div > 0$ for 52% of the issues in our sample. If the placing price of the rights is not stated, the estimated price, $Est(P_{right})$, is given by

$$Est(P_{right}) = 0.5(TERP_{AD-1} - Div - P_{offer}) \quad (3)$$

Div is subtracted from $TERP_{AD-1}$ because the price of the rights will reflect whether the new shares are entitled to the next dividend. If the new shares are not entitled but this is ignored, the TERP will be lower than in equation (2) but $Est(P_{right})$ will be higher than in (3), as will the inferred cost of placing the new shares plus rights (equation (5) below).

To help understand the dividend adjustments in equations (2) and (3), consider the following example. P_{old} (cum-rights) = £1.00, N_{old} = 100 shares, P_{offer} = £0.50, N_{new} = 100 shares and the next dividend Div = £0.50, to which the new shares are not entitled. On the ex-rights day the old shares will be worth £1.00, ie the dividend of £0.50 plus £100/200. Hence the expected price of the old shares ex-rights (the adjusted TERP) is £1.00, not £0.75. The rights will be worth nothing, although the offer price is only £0.50. Effectively the new shares are being offered at the same price as the old shares.

⁵ N_{new} excludes any ‘vendor consideration’ shares issued to the shareholders of a company being acquired. These shares are not issued for cash and their value is assumed to be the same as the value of the existing shares, so they do not affect the TERP. Four of the rights issues were accompanied by a private placing of shares for cash at P_{offer} . These placed shares are distinct from the pre-renounced shares. They were not offered *pro rata* to existing shareholders, and were therefore not part of the rights issue, unlike the pre-renounced shares. The placed shares are included in N_{new} for $TERP_{AD-1}$ because the price of the old shares should fall on announcement of a placing at a discount, other things equal, in the same way as the price should fall to the TERP on the ex-rights day in a rights issue. See, for example, Wruck (1989, appendix).

We argue that shareholders would not choose to pre-renounce the new shares if they anticipate receiving a higher price from selling the rights on the market than the expected placing price. Therefore, the observed placing price of pre-renounced rights provides an estimate of the expected price at which shareholders believed the rights could have been sold on the market. The adjusted TERP is the expected midpoint price of the old shares ex-rights assuming that no change in the market price is anticipated before or on the ex-rights day other than a fall to reflect the scrip element in the issue. The ex-rights day is the first day on which the rights are traded, which is the day after the announcement or after the EGM if there is one. So the placing discount, the discount of $P_{\text{offer}} + P_{\text{right}}$ or $+ \text{Est}(P_{\text{right}})$ in relation to the adjusted TERP, is an estimate of the expected cost of selling a very large block of shares plus rights at the start of the offer period.⁶

The placing price of the rights may exceed the expected selling price on the market in some cases, implying that placing prices will tend to overstate the expected market prices. On the other hand, it is plausible that there is more price uncertainty in a sale of rights during the offer than in a placing, if only because a placing will have been completed before the offer period starts. The probable lower risk of a placing implies that placing prices will tend to understate the expected market prices. It is hard to judge which of these opposing biases is more important.

Since new and old shares are the same item, allowing for any difference in the dividend entitlement, and since rights are traded in the same way as shares, the midpoint price of a right should be close to $P_{\text{exmid}} - P_{\text{offer}}$. The CSFB study in MMC (1999) indicates that this is in fact the case, at least for liquid shares. It follows that most of the placing discount

⁶ A right is a short-horizon call option (note 3). To the extent that pre-renouncing shareholders believe that the market value of a right will incorporate some time value, ignoring the time value means that the paper underestimates the discount to expected market value at which pre-renounced rights are placed. But the CSFB evidence (MMC, 1999) on the market value of rights suggests that the time value is not material. The mean discount measured by midpoint prices is about 0.5% throughout the offer period and does not become deeper during the offer, as would be expected if diminishing time value were material.

reflects the anticipated transaction cost, or effective half-spread (EHS), of selling the blocks on the market. The EHS for a block sale at a given time is defined as

$$EHS = (P_{\text{exmid}} - Div - P_{\text{blocksell}})/(P_{\text{exmid}} - Div) \quad (4)$$

where P_{exmid} is the ex-rights midpoint price of an old share and $P_{\text{blocksell}}$ is the execution price for a seller-initiated trade of a block of shares plus rights. Our estimate of $P_{\text{blocksell}}$ for very large blocks is $P_{\text{offer}} + P_{\text{right}}$ or $+ \text{Est}(P_{\text{right}})$. Our estimate of the expected P_{exmid} is $TERP_{\text{AD-1}}$.

So our estimate of the expected EHS is

$$\begin{aligned} \text{Est}(EHS) &= \text{Placing discount} \\ &= [TERP_{\text{AD-1}} - Div - (P_{\text{right}} + P_{\text{offer}})]/(TERP_{\text{AD-1}} - Div) \end{aligned} \quad (5)$$

Previous studies have found that the average abnormal return on announcement of rights issues is negative, as it is in our sample (Section 6.1). So it is possible that $TERP_{\text{AD-1}}$ is an upwardly biased estimate of the expected market price of the shares when they go ex-rights. Hence the placing discount in relation to $TERP_{\text{AD-1}}$ may be an upwardly biased estimate of the transaction cost of selling the new shares plus rights on the market. In response to this point, we report the placing discount in relation to the TERP using the midpoint market price at the close of the announcement day ($TERP_{\text{AD}}$). We also estimate the discount net of the fees apparently saved by pre-renouncing shares.⁷

It might appear that the estimated cost of sale relates to blocks of rights rather than to blocks of new shares plus rights. But the holder of a right at the end of the offer period does buy a new share; any rights not taken up at the offer close are sold by the broker to investors who buy the rights and the new shares at the same time. Any buyer of rights knows that he or she either will be the final holder, or will sell the rights to someone else who could be the

⁷ There is evidence from the US and UK that, on average, midpoint share prices fall during the offer period and then recover afterwards. A natural explanation is temporary downward pressure on prices during the offer, although this is questioned by Eckbo and Masulis (1992) and Singh (1997). If temporary price pressure is anticipated, this will account for some of the estimated EHS. But there is little difference for the seller between receiving a low price because the midpoint price is temporarily depressed and receiving a low price because the execution price of the trade is below the midpoint.

final holder. Thus, the prices at which block trades of rights are executed will reflect the cost of trading blocks of new shares and the rights to them combined. It should also be noted that a placee who buys a block of pre-renounced rights commits to buying the new shares to which the rights give entitlement (Rule 4.17(b)). The commitment to buy the new shares is mentioned in many of the prospectuses.

4. Sample

A search of the prospectuses of rights issues in the 15 years between 1 January 1987 and 31 December 2001 yielded 378 issues in which some shares were pre-renounced.⁸ 156 of these issues are excluded because the prospectus does not state that the pre-renounced shares were privately placed. Most of the renouncements with no private placing recorded are of small proportions of the new shares, but in 21 cases the shares renounced are 25% or more of the total. A further 27 issues are excluded because it is certain or likely that the shares were placed with a single individual, investor group or company that was acquiring or augmenting a large stake in the company. In the case of a placing of a large stake with a single investor, the price may be influenced by the anticipated benefits of being an ‘active’ shareholder (Barclay et al, 2003). Our interest is in the cost of selling blocks when there is no special buyer, so that the placees are simply suppliers of capital. In these cases the block is placed with a number of ‘passive’ investing institutions each of which will be willing to hold a few percent of the equity at most, and will not be expecting to become involved in managing the company. This information comes from discussions with two fund managers (also see Myners, 2001, pp. 89-93, on passivity amongst UK fund managers). Finally, nine issues are excluded because there are insufficient data to work out $TERP_{AD-1}$ or because the offer price

⁸ The sources of the prospectuses were Extel Financial, which no longer exists, and Perfect Information. Neither provided a comprehensive set of prospectuses for issues before 1990.

is uncertain because free warrants were issued as well as new shares. The final sample consists of 186 issues with pre-renounced shares that were privately placed.

Table 1 around here

Descriptive data about the sample are shown in Table 1. Several points should be mentioned. First, the amounts pre-renounced represent very large blocks in relation to the size of the offer and to the issuer's existing equity. The mean of the shares renounced as a proportion of the new shares is 42.3% (median 39.7%). In 28 issues (15% of the sample) the fraction pre-renounced is less than 25% of the new shares, the smallest fraction being 13.3%. Only five of these 28 issues are by USM or AIM companies, so it appears that exceptions to Rule 4.17(a) are sometimes made for companies listed on the Main Market. The mean of the shares renounced as a proportion of the existing shares is 24.5% (13.4%); in 96% of the sample the fraction renounced is at least 5% of the existing shares.

Second, most of the issuers in the sample are quite small, and have correspondingly illiquid shares. The mean market capitalisation is £61.0m (median £32.9m) and the mean half-touch is 2.26% (1.55%). The half-touch for a share at a given time is half the bid-ask spread, ie $0.5(P_{\text{ask}} - P_{\text{bid}})/P_{\text{mid}}$ where P_{ask} is the market makers' best ask quote and P_{bid} is their best bid. It is widely used as a measure of liquidity, and it represents the cost of a trade as a percentage of the midpoint price, assuming that the trade is executed at the prevailing best ask for a buy or best bid for a sell. The mean half-touch of 2.26% compares with a mean of about 0.4% for the largest 100 UK companies in the early 1990s and 0.5% for the next largest 250 companies (Board and Sutcliffe, 1996. See also Reiss and Werner, 1996, for evidence that half-touches become much higher amongst smaller listed companies).

A third point is that in most cases the pre-renouncing shareholders consist entirely or partly of directors, including the immediate family of a given director and trusts or companies controlled by the director, as recorded in the prospectus. The renouncing shareholders are entirely directors in 62% of the issues; they are a mixture of directors and others in a further 29%; and they are shareholders other than directors in the remaining 9%. The latter category includes issues in which the prospectus says merely that the shares were renounced by ‘certain shareholders’.

Nine of the sample issuers (4.8%) were in severe financial distress; the prospectus says they are unlikely to survive unless the issue goes ahead. Franks and Sanzhar (2005) report that 5.1% of 2,167 UK issuers of seasoned equity during 1989-98 were in distress, identified in the same manner. These data indicate that the pre-renouncement and placing of new shares is not a phenomenon concentrated amongst distressed issuers.

Most prospectuses in the sample state that the placees, the buyers of the pre-renounced shares plus rights, are investing institutions. Otherwise the prospectus says simply that the rights have been or are being placed. None of the prospectuses in the final sample discloses the identities or the number of the placees.

5. Cost of placing pre-renounced shares plus rights

5.1 *Main results*

The main results are presented in Table 2. Panel A first shows the placing discount under the assumption that the expected ex-rights midpoint price of the existing shares is the TERP as at the close of the day before the announcement ($TERP_{AD-1}$). The mean discount for the full sample is 8.7% (median 7.3%). The inference, according to the argument in Section 3, is that on average pre-renouncing shareholders expect the cost of selling the new shares plus

rights on the market to be 8.7% of the midpoint price of the existing shares ex-rights. In money terms, the mean cost of the placing discount is £612,232 (median £288,028).

Table 2 and Figure 1 around here

Figure 1 shows the distribution of placing discounts in relation to $TERP_{AD-1}$. 68% are clustered in a range between 3% and 9%, with most of the remainder being deeper than 9%. Only 5% of the discounts are smaller than 3%, and only 2% (three issues) have no discount or a premium. In one case the absence of a discount is because the offer price is the same as P_{AD-1} but the new shares are not entitled to the next dividend, so the offer is recorded as being at a premium and the rights as worth nothing. In the second case the pre-renouncing shareholder is HM Treasury, which, it seems, was granted special treatment in being allowed to place the rights at zero discount. There is no apparent reason for the small premium in the third case. The distribution confirms that, in issues with pre-renounced shares placed with passive placees, the price of the share plus right is normally set deep enough to provide the placees with an expected gain of several per cent. There are very few pre-renounced shares plus rights placed at a price at or near the TERP.

If the new shares plus rights were expected to be sold at the best bid price for the existing shares, the expected EHS would be the same as the half-touch. In studies of the costs of trades of existing shares, the EHS is often compared with the half-touch in order to measure the quality of execution of the trade. Panel B of Table 2 reports the expected EHS expressed as a multiple of the prevailing half-touch for the existing shares. The mean multiple is 7.0 times (median 5.1 times) using $TERP_{AD-1}$ as the expected market price. An EHS of five or more times the half-touch is much larger than estimates for liquid shares of the cost of smaller block trades of existing shares, and this point is discussed further in Section 6.4.

Because the average abnormal return on announcement of rights issues is negative, $TERP_{AD-1}$ may be viewed as an upwardly biased estimate of the expected market price of the shares ex-rights. So Table 2 also reports the discounts in relation to the TERP using the market price at the close of the announcement day ($TERP_{AD}$). The mean (median) discount in relation to $TERP_{AD}$ is 8.3% (7.0%), which is 0.4 (0.3) percentage points smaller than the mean in relation to $TERP_{AD-1}$. Thus the estimated transaction cost of selling the new shares plus rights is only slightly smaller when the actual post-announcement market price is used in the TERP.

The placing price of the rights is stated in 131 of the prospectuses.⁹ The placing discount is deeper in this sub-sample than in the sub-sample with the rights price inferred; the mean (median) discount for the new shares plus rights is 9.6% (7.9%) using $TERP_{AD-1}$ as the expected market price and 9.4% (7.6%) using $TERP_{AD}$. In 104 cases the placing price for the rights is below the regulatory maximum placing price, given by equation (3). These include 33 cases in which the rights were placed at a price of zero. The placing price is above the regulatory maximum in 18 cases, which was unexpected, though in 11 cases the excess is less than 5%. The advisers to the issue may have used a different market price for the old shares than we do to calculate $TERP_{AD-1}$ and therefore to calculate the maximum placing price, or they may have gained permission from the Stock Exchange to exceed the regulatory maximum. They may also have ignored the non-entitlement of five of the new shares to the next dividend, which would have resulted in higher maximum placing prices for these shares.¹⁰

⁹ A fee payable to the broker for placing the rights is recorded in 29 cases, and we use the placing price net of the fee in these cases. This fee is distinct from any fee payable to the places for buying the new shares, discussed below.

¹⁰ The mean of the excesses above the regulatory maximum rights placing prices is 18.3% (median 3.9%) of the maximum, or 2.61p (0.46p) per right. The two largest excesses are the cases, mentioned above, in which the seller is HM Treasury and the unexplained case in which the new share plus right was placed at a small premium to $TERP_{AD-1}$. Excluding these two outliers, and calculating the maximums using $TERP_{AD-1}$ ignoring non-entitlement to the next dividend, the mean of the excesses

The evidence from the sample of issues in which we know the rights placing price suggests that, for the issues in which the rights price is not stated, the inferred prices based on the regulatory maximums will be upwardly biased estimates of the true prices. So the mean and median placing discounts for the full sample are probably downwardly biased estimates of the true mean and median. Comparison between the sample with the rights price known and the sample with the rights price inferred indicates that the inferred mean (median) discount is underestimated by 3.1 (1.9) percentage points. But the underestimate will be less than this if most of the unstated rights prices are unstated because they were near the 'default setting' of the regulatory maximum.

A possible reason for choosing to pre-renounce shares is that the fee per new share is often lower for the pre-renounced shares than for other shares in the issue. The fee is lower in 72% of the 132 issues in which sufficient detail about the fees is disclosed for the comparison to be made. The rights issue announced by AAF Industries plc on 1 April 1993 provides a typical example. The prospectus states that, in connection with the underwriting agreement,

the Company has agreed to pay Hoare Govett [the organising merchant bank] ...

(i) a commission of 0.75 per cent of the value of the new Ordinary Shares at the issue price (ii) further commissions of 1.25 per cent of the value at the issue price of the new Ordinary Shares other than the Placed Shares [which had been pre-renounced], and 0.125 per cent of the same amount for every seven days (or part thereof) from 1 May 1993... and (iii) 0.5 per cent of the value at the issue price of the Placed Shares (p. 18).

In this case there were three extra weeks of underwriting required, costing three 'extra eighths', because an EGM had to be held after the issue had been announced and the

falls to 3.7% (1.6%) or 0.28p (0.22p) per right. Only two of the 18 issuers with a placing price above the maximum were not listed on the Main Market, and therefore not subject to the Exchange's Listing Rule 4.17(c).

underwriting agreement had been signed. The total fee for the placed shares was 1.250% of the offer price and the total for the other new shares was 2.375%. The usual reason for the lower fee for the placed shares is that the fee for being a placee, 0.50% in the example, is smaller than the fee for being a sub-underwriter, 1.25%. But it is unclear why the fee for being a placee should often be smaller than the fee for being a sub-underwriter.

Panel C of Table 2 reports the placing discount allowing for the value of any fee saved by pre-renouncing the shares:

$$\text{Placing discount} = [TERP - Div - (P_{\text{right}} + P_{\text{offer}}) - Fee] / (TERP - Div) \quad (6)$$

where Fee = the maximum fee in pence per share on shares other than those pre-renounced, minus the fee on pre-renounced shares. The effect of the fee adjustment is to reduce the mean discount in relation to $TERP_{AD-1}$ by 0.6% to 8.1% (median 6.5%). Thus, the fee savings are small in relation to the placing discounts, though the effect on the mean discount will be a little larger than has been calculated to the extent that there were fee savings in the 54 issues in which the savings are unknown.

It is possible that the fee savings are illusory, because the way that itemised fees are reported may bear little relation to how the total cost of the issue is determined. The total costs of issues are normally much higher than the reported underwriting and placing fees. In the AAF Industries issue, the fees relating to the underwriting agreement for all the shares sum to £81,538, but the total costs are £400,000. The largest item in most issues is the organiser's corporate finance or advisory fee.

The only previous evidence on the transaction cost of selling new shares plus rights is in the MMC report (1999, p. 78). This states that in 68 rights issues during 1995-97 the rump shares plus rights not taken up by the offer close were sold at a mean discount of 1.0% in relation to the midpoint price at the close and 1.9% in relation to the price the day after the close. These discounts are considerably smaller than our estimates. The average proportion of

the rump shares is 8% of the new shares, much smaller than the average proportion pre-renounced in our sample (43%), and the liquidity of the shares in the MMC sample is likely to have been greater.

5.2 *Implication for choice between rights issue and open offer*

It was noted in the Introduction that wealth is transferred in an open offer at a discount from non-subscribing shareholders to buyers of the new shares. Yet in 393 open offers made during 1989-96, 47% involve pre-renounced shares (compared with 28% of rights issues from the same period) and the mean of the proportions of new shares taken up by the shareholders entitled to them is only 48% (Armitage, 2002). Thus, in the first half of the 1990s, the time when open offers were ‘catching on’, they were more popular than rights issues amongst companies with pre-renouncing shareholders, despite the fact that it is the non-subscribing shareholders who appear to lose out in an open offer compared with an equivalent rights issue.

Recognition that large shareholders can not sell their rights without incurring substantial cost can explain why a non-subscribing blockholder would not object to an open offer. Such a blockholder will be indifferent between a given rights issue and the corresponding ‘breakeven’ open offer, one that raises the same amount of new equity and is made at a discount such that the non-subscriber loses the same amount in the open offer as in the rights issue. In most rights issues the discount to the pre-announcement market price in the breakeven open offer works out to be a little over half of the rights issue discount. The exact breakeven discount depends on the terms of the rights issue, and is given by $(P_{\text{mid,AD-1}} - Div - P_{\text{open}})/(P_{\text{mid,AD-1}} - Div)$, where

$$P_{\text{open}} = Y(P_{\text{mid,AD-1}} - Div - L)/(LN_{\text{old}} + Y) \quad (7)$$

$P_{\text{mid,AD-1}}$ is the pre-announcement share price, which is the same for both rights issue and open offer; P_{open} is the offer price in the breakeven open offer; Y is the equity raised in the rights issue ($N_{\text{new}}P_{\text{offer}}$) and in the breakeven open offer; and L is the estimated loss per old share on selling the rights in the rights issue. Our baseline estimate of L is $[TERP_{\text{AD-1}} - Div - (P_{\text{offer}} + P_{\text{right}})]N_{\text{new}}/N_{\text{old}}$. Note that if L is zero, the discount in the breakeven open offer is zero. Equation (7) is found by solving for P_{open} and N_{open} in the simultaneous equations

$$P_{\text{mid,AD-1}} - TERP_{\text{open}} = L \quad (8)$$

$$P_{\text{open}}N_{\text{open}} = Y \quad (9)$$

where $TERP_{\text{open}} = [P_{\text{AD-1}}N_{\text{old}} + (P_{\text{open}} + Div)N_{\text{open}}]/(N_{\text{old}} + N_{\text{open}})$ and N_{open} is the number of new shares in the breakeven open offer. Equation (8) sets the loss per share incurred by a non-subscribing large shareholder in the rights issue to be equal in the open offer, and (9) sets the amount of equity raised to be equal. Table 3 shows the discounts in the breakeven open offers for a range of hypothetical rights issues. It can be seen by comparing columns 7 and 11 that the breakeven discount is a little over half of the rights issue discount in all cases except for the rights issue at a very deep discount of 80%.

Table 3 around here

Equation (7) can be used to calculate the discounts in the breakeven open offers for the rights issues in our sample. The mean breakeven discount is 12.5% (median 10.0%). Thus, for the median rights issue, a non-subscribing large shareholder would have preferred the alternative of an open offer at any discount smaller than 10.0%. Such a discount is normal in an open offer.¹¹

¹¹ Listing Rule 4.26 states that an open offer can not be made at a discount of more than 10% in relation to the pre-announcement midpoint market price, unless the issuer is in severe financial difficulties or there are other exceptional circumstances. The rule does not apply to USM/AIM

The pre-renounce-and-place route may not always have been preferable for non-subscribers in rights issues. In Marsh's (1977) sample of 1,237 rights issues made during 1963-75, only 1% of the issues feature pre-renounced shares. The proportion is 13% in Slovin et al's (2000) sample of 183 rights issues during 1982-85. For the current study, the proportion of rights issues found to have pre-renounced shares increases from 26% for 1987-94 to 47% for 1995-2001, and the renounced shares were privately placed in 59% of these cases. One interpretation is that selling rights on the market was almost always cheaper in the 1960s and 70s than arranging a pre-announcement private placing, even for large blocks, but that the position reversed during the 1980s. Alternatively, pre-renouncements and placings may not have been disclosed until the 1980s.

6. Reasons for the discount

Several previous studies have reported that private placings of new shares are made at substantial discounts to the prevailing market price. A variety of explanations has been offered. The discount could be compensation for future costs of intervention by active placees (Wruck, 1989); or compensation for costs to the placee of investigating the issuer and certifying its value (Hertzel and Smith, 1993); or merely compensation for uncertainty about the issuer's value (Altinciliç and Hansen, 2003; Corwin, 2003); placements of restricted stock could be discounted in part because of the impaired liquidity of restricted stock (Bajaj et al, 2001; Silber, 1991); issuers may be overvalued at the time of the placement, with the placement price discounted because the price reflects the fair value of the shares (Barclay et al, 2003; Hertzel et al, 2002); discounts benefit managers when they are used to attract placees who will support the managers, and when the discounted shares are bought by the managers themselves (the management entrenchment hypothesis: Barclay et al, 2003; Wu, 2004). There

companies. Armitage (2002) reports that the mean discount to the pre-announcement market price in his sample of 393 open offers is 13.0% (median 7.8%).

is also the possibility that the demand curve is inelastic; evidence of various types is accumulating that supply and demand schedules for shares are inelastic (eg Corwin, 2003; Kalay et al, 2004).

Some of the above explanations are likely to apply with reduced force or not at all in the case of our pre-renounced shares. First, the placees are found by the issuer's broker and merchant bank, and are not chosen by the managers. All the pre-renounced shares and rights in an issue are placed at the same price, so no discrimination between placees is possible, unlike in US private placements. Also, in none of our sample are the directors placees for any of the pre-renounced shares (they are placees in some of the excluded issues). These points tell against the management entrenchment hypothesis. Second, there are no restrictions on trading the new shares, which are identical to the existing shares unless they differ in dividend entitlement. Third, the placees are institutional investors that are unlikely to intervene in the direction of the company, and so are unlikely to require compensation for being active shareholders. Wruck (1989) suggests that in the majority of her US private placements the buyers serve as catalysts that increase market value. But in 58% of her sample there is only one buyer; the maximum number of buyers is six; and 78% of the disclosed buyers are individuals or corporations. Similarly, the placees in Barclay and Holderness' (1989) sample of secondary placements are thought mostly to be active and all are either corporations or individuals. Bethel et al (1998, p. 611) classify placees as active if they publicly state that they are active, and this group seems to consist of prominent individual investors, not institutions.

6.1 *Market reaction*

Evidence on the certification hypothesis can be obtained from the abnormal returns on the announcement of offers. If placees certify value, we might expect the average abnormal return (AAR) to be positive, as is the case for US and UK stand-alone private placements. The

two-day AAR on announcement of the rights issues in our sample is -1.08% (median -0.94%), which is significantly less than zero at the 10% level (t -statistic $= -1.78$); 63% of the abnormal returns are negative.¹² This AAR is close to the findings of previous studies. For a sample of rights issues from 1982-85, Slovin et al (2000) report two-day AARs of -1.99% for 24 issues with pre-renounced shares and -1.86% for 159 other issues, the difference being statistically insignificant. For their sample from 1986-94, the AAR is -8.59% for 20 issues with pre-renouncements and -2.29% for 180 other issues. The difference is significant at the 5% level, but the -8.59% figure may be a quirk of the small sample. Armitage (2002) reports a mean two-day AAR of -1.63% for 209 rights issues with pre-renounced shares during 1985-96 compared with a mean AAR of -2.49% for 493 other rights issues, and the difference is not significant. These results indicate that the short-term reaction to rights issues with pre-renouncements is negative and is probably not significantly different from the reaction to issues without pre-renouncements. They provide little support for the hypothesis that the placing of pre-renounced shares provides a certification benefit.

6.2 *Long-run abnormal returns*

The remaining explanations for the placing discount are price uncertainty, inelastic demand and overvaluation amongst issuers. Regarding overvaluation, the argument is that the price which the placees are willing to pay for an issuer's shares plus rights reflects a valuation of the issuer that is better informed and more realistic than is the market price. The main support for the overvaluation hypothesis is the evidence of substantial negative long-run abnormal returns and operating performance following US private placements (Hertzel et al, 2002). Underperformance has also been found following UK rights issues (Capstaff et al,

¹² The two-day abnormal return $AR_{jt,t+1}$ for a given share j for days t and $t+1$ is calculated using the simple index model: $AR_{jt,t+1} = R_{jt,t+1} - R_{Mt,t+1}$, where $R_{jt,t+1}$ and $R_{Mt,t+1}$ are the continuously compounded two-day returns on share j and the FTSE All-Share Index, respectively. The t -statistic is given by $\sqrt{n}(\text{mean}(AR_{jt,t+1}))/\text{std dev}(AR_{jt,t+1})$. The sample size for the abnormal returns, n , is 184.

2006; Ho 2005). It is plausible that placees for pre-renounced shares in the UK will have access to private information, so they could be better informed than other investors, as in US private placements. An awkward point for the overvaluation hypothesis is that in our sample the market price of the old shares does not fall to the placing price of the new shares plus rights (and market prices rise on average on news of US private placements). This is despite the fact that market investors know the placing price and know that the placees have access to private information.

To check whether perceived overvaluation of issuers could explain the placing discounts, we estimate long-run abnormal returns following the sample rights issues. The methodology used is similar to that in Capstaff et al (2006), and is discussed more fully there. In brief, the buy-and-hold abnormal return (BHAR) between dates 0 and T for firm j , $AR_{j,T}$ is estimated by

$$AR_{j,T} = R_{j,T} - R_{jmatch,T} \quad (10)$$

where date 0 is first day of the month following the announcement date of the issue, date T is the first day of any subsequent month up to 60 months, $R_{j,T}$ is the buy-and-hold return on share j , and $R_{jmatch,T}$ is the buy-and-hold return on a matched or benchmark share for j . Dividends are included using the Datastream item 'dividend yield'. The return for a given month t , $R_{j,t}$, is given by

$$R_{j,t} = (P_{j,t} - P_{j,t-1})/P_{j,t-1} + (1 + Yld_{j,t})^{1/12} - 1 \quad (11)$$

where $P_{j,t}$ is the price at the end of month t adjusted for subsequent capital changes such as scrip issues, and $Yld_{j,t}$ is the dividend yield. The yield as shown in Datastream is a number rather than a percentage, so it needs to be divided by 100. If j was delisted before the 60th month after the issue, the abnormal return is taken to be zero after the date of delisting.

Matches are found according size, size and industry, and size and book-to-market ratio. The matching firm by size is the firm with the nearest market capitalisation to that of

firm j six weeks after the announcement date, so that the offer proceeds are included in j 's market capitalisation. The matching firm by size and industry is found in the same way, but with the pool of potential matches restricted to firms in the same business sector as j , as described by Datastream. The matching firm by size and book-to-market is the firm with the next book-to-market ratio above that of j as at six weeks after the announcement, with the pool of potential matches restricted to firms with a market capitalisation within $\pm 30\%$ of that of j . The market-to-book ratio is taken from Datastream and inverted; book value is given by ordinary shareholders' funds less the balance sheet value of intangible assets, as at the company's most recent year-end. Companies that are in the sample of issues with pre-renounced shares are excluded from the samples of potential matches. Some of the sample show very large changes in BHARs from one month to the next. To alleviate the impact of outliers, results are reported for samples excluding the most volatile 5% of BHARs. Volatility for a given share is measured by the standard deviation of the BHARs across the 60 months.

Table 4 and Figure 2 around here.

The results are shown in Table 4 and Figure 2. The results are similar matching by size and by size and industry, but somewhat different matching by size and book-to-market. The mean BHARs are positive initially, reaching a peak after about six months. They then drift downwards but do not become consistently negative until month 36 for size and size-and-industry matching, or month 17 for size-and-book-to-market matching. They flatten out or become less negative towards the end of the 60 months. They are only significantly different from zero for the first few months, using a standard t -test, so they are not significant for months 12, 36 or 60, for any of the matches. But the mean BHARs are significantly

negative at the 5% level for months 36 and 60 matching by size and book-to-market, using the Wilcoxon matched-pairs signed-rank test.¹³

Mean BHARs after three years are between +0.7% and –19.6%, depending on the matching. In comparison, Hertz et al (2002, p. 2603) report significant mean BHARs of between –23.8% and –45.2% after three years following US private placements. Capstaff et al (2006) report mean BHARs following UK rights issues which are more negative than ours and are significant after the first few months. They lie between –25.1% and –27.6% after three years. The mean BHARs after three years in Ho (2005, p. 38) are also significant but are more in line with our estimates, lying between –8.5% and –19.5%. Ho's long-run abnormal returns estimated using a calendar-time approach and multifactor models are only slightly negative and are not significant.

The existing evidence from long-run abnormal returns estimated using matching firms indicates that UK companies are overvalued, on average, when they make a rights issue. The evidence presented here using the same methodology indicates that companies making a rights issues with pre-renounced shares are fairly valued, or at least are not clearly overvalued, at the time of the issue. Comparison of our results with those of Capstaff et al and Ho suggests that it is companies making rights issues without privately placed pre-renounced shares that tend to be overvalued. The evidence does not support the hypothesis that placing discounts arise because issuers with pre-renounced shares are overvalued.

6.3 *Regression analysis of placing discounts*

It has been argued that the depth of discount should be positively related to the difficulty of valuing the issuer and to the cost of placing shares, and negatively related to the

¹³ The results for the full samples show a similar but more erratic pattern of positive mean BHARs for the first 18 months or more, followed by negative numbers. None of the means are significant for months 12, 36 or 60.

elasticity of demand for the shares. These explanations are closely linked. A share which is relatively difficult to value could, for that reason, have relatively inelastic supply and demand schedules, reflecting dispersion in investors' reservation sell and buy prices. Again, Altinciliç and Hansen (2003, p. 286) describe the cost of placing shares as a cost required 'to attract capital suppliers and compensate them for bearing the burden of more illiquidity of longer term investing'. The difficulty of attracting capital suppliers will presumably be related both to the difficulty of valuation and to the lack of elasticity of demand.

This section presents a test of whether the placing discounts reflect price uncertainty, inelastic demand or the overvaluation of issuers. The placing discount is regressed on the half-touch for the relevant shares (*half-touch*). A wider touch could be due both to greater information asymmetry and to less elastic supply and demand, so the discount should be positively related to *half-touch* if it is due to uncertainty or to inelastic demand. The discount is also regressed on the number of privately placed shares as a proportion of the existing shares (*relative size*). This variable should be significant if demand elasticity affects placing discounts. The placed shares consist of those pre-renounced together with shares in an accompanying private placing, if any, or secondary placing on behalf of an existing shareholder, if any. The results are similar if only the shares pre-renounced are included. The placing discount should not be related to either of these variables if the discounts are due to overvaluation.¹⁴

The results are reported in Table 5. The full sample with available data excludes the seven issues with small placing discounts to $TERP_{AD-1}$ of less than 2% and the eight with deep discounts of more than 20%; the sample with known placing prices excludes the three discounts of less than 2% and the seven of more than 20%. The results for the samples

¹⁴ Unless one takes the view that the extent of the overvaluation should be negatively related to the extent of public information about the issuer, for which *half-touch* is a proxy. However, Hertz et al (2002) find the overvaluation in private placements not to be significantly related to the size of the company, which is also a proxy for public information.

without the exclusions are qualitatively similar to those reported, but the explanatory power of the regressions is much lower.

Table 5 around here

The placing discount in relation to $TERP_{AD-1}$ is significantly related at the 1% level to *half-touch* in both the full sample and the sample with known placing prices for the rights. The discount is significantly related at the 5% level to *relative size* in the sample with known placing prices only. The adjusted R^2 for the sample with known placing prices is 0.33, compared with 0.20 for the full sample. When the placing discount in relation to $TERP_{AD}$ is used as the dependent variable, the R^2 values are much lower. *Half-touch* remains highly significant in both samples but *relative size* is not significant.

An alternative measure of the placing discount is the discount of the actual price per right to the regulatory maximum, given by $Right_{max} = 0.5(TERP_{AD-1} - Div - P_{offer})$. The discount to $Right_{max}$ is $(Right_{max} - P_{right})/Right_{max}$. The results reinforce those for the regressions with placing discount as the dependent variable. Both *half-touch* and *relative size* are significantly related to the discount to $Right_{max}$ at the 1% level. The adjusted R^2 of the regression is 0.42.

We experimented with three other variables that have been used in previous studies as proxies for price uncertainty and information asymmetry, namely the log of the market capitalisation of the issuer before the announcement, the log of the share price before the announcement, and the standard deviation of the daily returns on the share. These variables all have significant coefficients with the predicted signs in univariate regressions. But they are all highly correlated with *half-touch* and with each other, and their inclusion adds very little to the R^2 of the regressions reported.

The explanatory power of the two independent variables, especially *half-touch*, is evidence that price uncertainty and probably inelastic demand are factors in setting the placing discount, and is further evidence against overvaluation. The better goodness of fit when the discount in relation to $TERP_{AD-1}$ is the dependent variable suggests that the expected market price used in setting the offer price and rights placing price is $TERP_{AD-1}$ rather than $TERP_{AD}$. The better goodness of fit for the sample with known placing prices, and the fact that the discount to $Right_{max}$ is related to *half-touch* and *relative size*, indicate that the independent variables have an incremental effect on the actual rights placing price, over and above any effect they have on the offer price.

6.4 *Large block sales of existing shares*

If the reason for the placing discount is uncertainty about issuer value or inelastic demand, we might expect shareholders seeking to sell very large blocks of *existing* shares to passive investors to face similar costs of sale, although it is arguable that uncertainty about value will be greater at the time of an equity issue than at other times. The microstructure literature partitions the cost of a trade into a permanent price impact, measured by the difference between the midpoint price at the time of the trade and a post-trade price shortly afterwards, and a temporary impact, measured by the difference between the post-trade price and the price of the trade. The permanent impact is viewed as a measure of the effect of the new information about the share price implied by the trade, and the temporary impact is viewed as a measure the ‘liquidity cost’, ie the gain for the liquidity-supplying counterparty. The cost of selling pre-renounced shares plus rights is mainly a gain for the buyers. Could the typical liquidity cost of selling a very large block of existing shares to passive investors be around 8% of the market price, or six times the half-touch?

Existing evidence on this question is scarce, because it is difficult to measure the cost facing a seller of a very large block of existing shares. The shareholder may choose to sell via a sequence of sales of smaller blocks. This makes it impossible to estimate the costs of selling the total block, unless the intentions of a given investor are known.¹⁵ Sales of intact large blocks do not provide clean evidence on the cost of a trade initiated by the seller. This is because it is uncertain whether a given sale of a block was initiated by the seller, or whether it was the counterparty trade in a transaction initiated by the buyer. In the latter case the seller was supplying liquidity, and for a trade of a given number of shares at a given time, a seller who is supplying liquidity can be expected to receive a better price than a seller who is demanding liquidity.

There is no UK evidence on the costs of selling large blocks of five per cent or more of the relevant firm's equity. Board and Sutcliffe (1996), Naik and Yadav (1999) and others find that, for most of the range of observed trade sizes, the quality of execution improves as block size increases (average trade prices move further within the touch). They note that the very largest blocks trade outside the touch, but there is no evidence on how far outside.

Several papers study secondary placements of five per cent or more of the equity in the USA. In at least two thirds of such placements, the price at which the shares are placed is at a substantial *premium* to the prevailing market price. The probable reason why the buyers are willing to pay a premium is that they are active investors who anticipate using, and do go on to use, the control or influence from their large shareholding to improve company performance and to extract private benefits that will not accrue to other shareholders (Barclay and Holderness, 1989; Barclay et al, 2003; Bethel et al, 1998). Signs of blockholder intervention after purchase of the block include asset sales, share repurchases, replacement of senior executives and improvements in operating performance. A seller who can find an

¹⁵ As they are in Keim and Madhavan (1997). However, the blocks in their sample are very much smaller than the blocks studied here, both in absolute size and in relation to the equity of the company.

active buyer willing to pay a premium apparently faces a negative cost for the sale. However, it is likely that most of the secondary placements transacted at a premium are initiated by the buyer rather than the seller.

A US study by Keim and Madhavan (1996) is of interest. The sample consists of block trades in shares with a market capitalisation below the prevailing median on the NYSE. The counterparty in every case is a passive fund which specialises in providing liquidity for upstairs trades in smaller stocks only. So the sample consists of trades in relatively illiquid shares, in which the initiator of each trade is known for certain. For the quintile of the largest block sales, accounting for between 0.8% and 7.9% of the equity outstanding, the mean temporary impact is -4.6% , ie a liquidity cost of 4.6% .

In summary, there is little evidence on the cost of selling very large blocks of illiquid shares to passive investors. The evidence of Keim and Madhavan (1996) indicates that the liquidity cost is several percent of the market price, and our evidence supports this. We are suggesting that a discount of several per cent is not a feature peculiar to private placings of new equity, but would arise in an attempt to sell a very large block of existing or new equity to passive investors via the normal trading process.

7. Conclusion

The paper uses evidence from pre-renunciations of new shares in rights issues to estimate the cost of selling very large blocks of shares plus rights to passive investors. The average cost is between 7.6% and 9.6% of the midpoint market price of the existing shares, depending on the assumptions made. This is a substantial ‘hidden’ cost in the rights issue method for issuers with one or more large shareholders who do not wish to subscribe for the new shares, and with no special buyer willing to buy the renounced shares plus rights *en bloc* at a favourable price. It is true that an open offer to raise the same amount of new equity will

not necessarily reduce the cost of the issue to a large non-subscribing shareholder. But recognition that there is a substantial cost to selling shares plus rights explains why such a shareholder need not prefer a rights issue, and helps to explain the apparently odd fact that the proportion of open offers with pre-renouncing shareholders is higher than the proportion of rights issues.

The findings raise the question of why a substantial discount is needed to sell large blocks of shares plus rights. The explanations best supported by the evidence are uncertainty about the value of the issuer and inelastic demand for the shares. Estimated long-run abnormal returns following the rights issues with pre-renounced shares are not consistently or significantly negative, indicating that perceived overvaluation of the issuer is unlikely to be the reason for the placing discounts. The depth of the discount is positively related to the half-touch and to the amount pre-renounced as a proportion of the existing shares. If the discounts in block sales of new shares plus rights are due to uncertainty and inelasticity, these explanations ought also to apply to block sales of existing shares to passive investors. If so, we would expect costs of sale similar to those reported in this paper. There is no existing evidence on the cost of selling very large blocks of existing shares in the UK, and this cost would be worth investigating. It would also be interesting to know why pre-renounced and placed shares in rights issues were virtually non-existent in the 1960s and 70s, but had become quite common by the 1990s.

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Table 1. Descriptive data

The table shows descriptive data for 186 rights issues made during 1987-2001 with pre-renounced shares that were privately placed. Gross proceeds = number of new shares \times offer price gross of fees; amount pre-renounced = number of shares recorded as pre-renounced in the prospectus \times offer price; market capitalisation of issuer = number of existing shares \times midpoint market price as at close of day before offer announcement ($P_{\text{mid,AD-1}}$); half-touch of issuer's shares = $(P_{\text{ask}} - P_{\text{bid}})/(P_{\text{ask}} + P_{\text{bid}})$ given by the mean half-touch across the first five trading days of the month before the month of the offer announcement, where P_{ask} and P_{bid} are the market makers' best ask and bid quotes, respectively; discount to $P_{\text{mid,AD-1}} = (P_{\text{mid,AD-1}} - \text{Div} - P_{\text{offer}})/(P_{\text{mid,AD-1}} - \text{Div})$, where Div = next dividend if new shares are not entitled to it. Sample for half-touch is 152 issues due to unavailable data. Sources: prospectuses; Datastream for P_{ask} and P_{bid} , and for $P_{\text{mid,AD-1}}$ if not in prospectus.

Panel A	Mean	Median	Minimum	Maximum
Gross proceeds (£000)	£15,895	£8,496	£291	£125,229
Amount pre-renounced (£000)	£6,001	£3,146	£106	£41,827
Shares pre-renounced (000)	9,816	3,520	305	384,377
as % of new shares issued	42.3%	39.7%	13.3%	79.8%
as % of existing shares	24.5%	13.4%	3.3%	738.8%
as % of existing plus new shares	12.3%	9.5%	2.9%	54.1%
Mkt capitalisation of issuer (£000)	£60,971	£32,914	£635	£790,558
Half-touch of issuer's shares	2.26%	1.55%	0.21%	12.84%
Offer price of new shares	142.4p	106.0p	2.0p	650.0p
Placing price of rights	8.5p	4.8p	0.0p	50.0p
Discount of offer price to $P_{\text{mid,AD-1}}$	18.8%	17.2%	-5.3%	74.4%
Panel B				
Number of issues with shares renounced by				
Directors			115	
Mixture of directors and other shareholders			54	
Other shareholders only			17	

**Table 2. Placing discount of pre-renounced shares plus rights
to the expected ex-rights midpoint price**

The proxies for the expected ex-rights price are $TERP_{AD-1}$ and $TERP_{AD}$. $TERP_{AD-1} = [P_{mid,AD-1}N_{old} + (P_{offer} + Div)N_{new}]/(N_{old} + N_{new})$, where N_{old} = number of old shares, N_{new} = number of new shares, P_{offer} = offer price. $TERP_{AD}$ uses midpoint price for announcement day instead of $P_{mid,AD-1}$. The placing discount in relation to $TERP_{AD-1}$ is $[TERP_{AD-1} - Div - (P_{right} + P_{offer})]/(TERP_{AD-1} - Div)$, where P_{right} is the stated or inferred placing price of the rights. Other terms are as in Table 1. Sample numbers vary due to missing data.

Panel A	Mean %	Median %	Min %	Max %	N
Discount in relation to $TERP_{AD-1}$					
Full sample	8.72	7.33	-2.56	36.19	186
Sample with placing price known	9.62	7.92	-1.39	36.19	131
Discount in relation to $TERP_{AD}$					
Full sample	8.29	6.95	-6.54	38.65	184
Sample with placing price known	9.36	7.62	-3.62	38.65	129
Panel B	Mean ×	Median ×	Min ×	Max ×	N
Discount in relation to $TERP_{AD-1}$ as a multiple of half-touch					
Full sample	7.01	5.11	-1.09	80.58	152
Sample with placing price known	8.32	5.87	-1.09	80.58	105
Discount in relation to $TERP_{AD}$ as a multiple of half-touch					
Full sample	6.92	4.20	-1.65	86.07	152
Sample with placing price known	8.37	5.56	-1.65	86.07	105
Panel C	Mean %	Median %	Min %	Max %	N
Discount in relation to $TERP_{AD-1}$ net of fee saved by pre-renouncing					
Full sample	8.08	6.45	-3.59	35.23	174
Sample with placing price known	8.95	7.28	-1.67	35.23	123
Discount in relation to $TERP_{AD}$ net of fee saved by pre-renouncing					
Full sample	7.61	6.20	-6.84	37.73	172
Sample with placing price known	8.61	6.84	-4.65	37.73	121

Table 3
Hypothetical rights issues and their breakeven open offers

The first five columns show the terms of hypothetical rights issues with varying discount, ratio of new to old equity and entitlement of the new shares to dividend. Columns 8 and 9 show, respectively, what the offer price and number of new shares must be in a breakeven open offer which has the same loss per old share for a non-subscribing shareholder and raises the same amount of equity as the rights issue in the same row. Column 12 shows the loss per share in the rights issue, L , calculated on the basis that the non-subscriber loses $0.5(TERP_{AD-1} - Div - P_{offer})N_{new}/N_{old}$ per share. The loss per share in the open offer is given by $P_{AD-1} - TERP_{open}$ and is the same number by design as for the rights issue. $TERP_{open} = [P_{mid,AD-1}N_{old} + (P_{open} + Div)N_{open}]/(N_{old} + N_{open})$; P_{open} = offer price in breakeven open offer; N_{open} = number of new shares in open offer. P_{open} is given by $Y(P_{AD-1} - Div - L)/(LN_{old} + Y)$ and N_{open} is given by Y/P_{open} , where $Y = N_{new}P_{offer}$. See Section 5.2 for derivation of formula for P_{open} . Other terms are as in previous tables.

Rights issue					Breakeven open offer						
1	2	3	4	5	6	7	8	9	10	11	12
$P_{mid,AD-1}$	N_{old}	P_{offer}	N_{new}	Div	$TERP_{AD-1}$	Discount to $P_{mid,AD-1}$	P_{open}	N_{open}	$TERP_{open}$	Discount to $P_{mid,AD-1}$	Loss per share
£10	100	£2	50	£0.0	£7.33	80.0%	£3.71	26.92	£8.67	62.9%	£1.33
£10	100	£7	50	£0.0	£9.00	30.0%	£8.31	42.11	£9.50	16.9%	£0.50
£10	100	£8	50	£0.0	£9.33	20.0%	£8.92	44.83	£9.67	10.8%	£0.33
£10	100	£8	50	£0.5	£9.50	15.8%	£8.71	45.95	£9.75	8.4%	£0.25
£10	100	£9	50	£0.0	£9.67	10.0%	£9.48	47.46	£9.83	5.2%	£0.17
£10	100	£8	10	£0.0	£9.82	20.0%	£8.90	8.99	£9.91	11.0%	£0.09
£10	100	£8	100	£0.0	£9.00	20.0%	£8.94	89.47	£9.50	10.6%	£0.50
£10	100	£8	1000	£0.0	£8.18	20.0%	£8.99	890.00	£9.09	10.1%	£0.91
£10	100	£8	1000	£0.5	£8.64	15.8%	£8.74	914.95	£9.32	8.0%	£0.68

Table 4
Long-run abnormal returns

The table shows mean and median abnormal returns for periods of one, three and five years from the months after the announcement dates of the sample issues. The abnormal return for firm j over a given period is estimated by the buy-and-hold return for j minus the buy-and-hold return for a firm matched to j according to size, size and industry, or size and book-to-market ratio. Sample numbers vary because of missing data in Datastream and because some of the sample are delisted before the end of the 60 months after the issue. To alleviate the impact of outliers, results are reported for samples excluding the most volatile 5% of BHARs. None of the mean BHARs is significant according to t -statistics given by $t = \sqrt{n}[\mu(AR_{j,T})/\sigma(AR_{j,T})]$, where $\mu(AR_{j,T})$ is the mean of the BHARs for the n shares in the sample $j = 1, \dots, n$ for month T , and $\sigma(AR_{j,T})$ is the standard deviation of the cross-section of BHARs for month T . The equality of the distributions of issuer and matching buy-and-hold returns is also measured by a Z-statistic that is the test statistic in the Wilcoxon matched-pairs signed-rank test, as in Loughran and Ritter (1997). $Z_T = [D_T - n(n+1)/4]/\sqrt{[n(n+1)(2n+1)/24]}$. D_T is computed by ranking the absolute values of the BHARs for month T and then summing the ranks of the positive BHARs.

<i>Holding period</i>	<i>Mean BHAR</i>	<i>Median BHAR</i>	<i>Proportion negative</i>	<i>Wilcoxon Z-statistic</i>	<i>N</i>
1 year: matching by					
Size	3.7%	2.5%	0.48	0.28	168
Size and industry	3.8%	4.8%	0.46	1.07	167
Size and book/market	5.8%	-1.4%	0.51	-1.10	148
3 years: matching by					
Size	0.6%	-8.5%	0.54	-1.04	150
Size and industry	-2.4%	-9.2%	0.54	-0.90	149
Size and book/market	-15.0%	-20.8%	0.60	-2.29	134
5 years: matching by					
Size	-13.9%	-16.1%	0.57	-1.52	124
Size and industry	-10.0%	-8.5%	0.54	-0.83	124
Size and book/market	4.7%	-18.5%	0.59	-2.27	114

Table 5
Regression results

The table shows OLS regression coefficients for regressions of the discount of the placing price of pre-renounced shares plus rights on the half-touch for the relevant share (*half-touch*) and the shares pre-renounced or otherwise privately placed as a proportion of the old shares (*relative size*). Also shown is a regression in which the dependent variable is the discount to the regulatory maximum rights price, $Right_{\max}$, for issues with the rights placing price known. $Right_{\max} = 0.5(TERP_{AD-1} - Div - P_{\text{offer}})$. *t*-statistics are in italics, using standard errors with White's correction for heteroscedasticity. The sample numbers are smaller than in Table 2 due to missing data and because issues with discounts to $TERP_{AD-1}$ smaller than 2% and deeper than 20% are excluded.

<i>Sample</i>	<i>Dependent variable: placing discount to</i>	<i>Constant</i>	<i>Half-touch</i>	<i>Relative size</i>	<i>Adjusted R²</i>	<i>N</i>
All	$TERP_{AD-1}$	0.063 <i>13.40</i>	0.756 <i>4.64</i>	0.018 <i>0.87</i>	0.20	137
Rights price known	$TERP_{AD-1}$	0.060 <i>11.04</i>	1.016 <i>5.59</i>	0.048 <i>2.15</i>	0.33	95
	$Right_{\max}$	-0.000 <i>-0.02</i>	0.806 <i>6.77</i>	0.049 <i>3.62</i>	0.42	95
All	$TERP_{AD}$	0.065 <i>11.76</i>	0.594 <i>3.64</i>	-0.004 <i>-0.21</i>	0.09	124
Rights price known	$TERP_{AD}$	0.064 <i>9.70</i>	0.889 <i>5.25</i>	0.014 <i>0.56</i>	0.19	87

Figure 1

The figure shows the frequency of 186 placing discounts of pre-renounced shares plus rights by depth of discount. The discounts are in relation to $TERP_{AD-1}$.

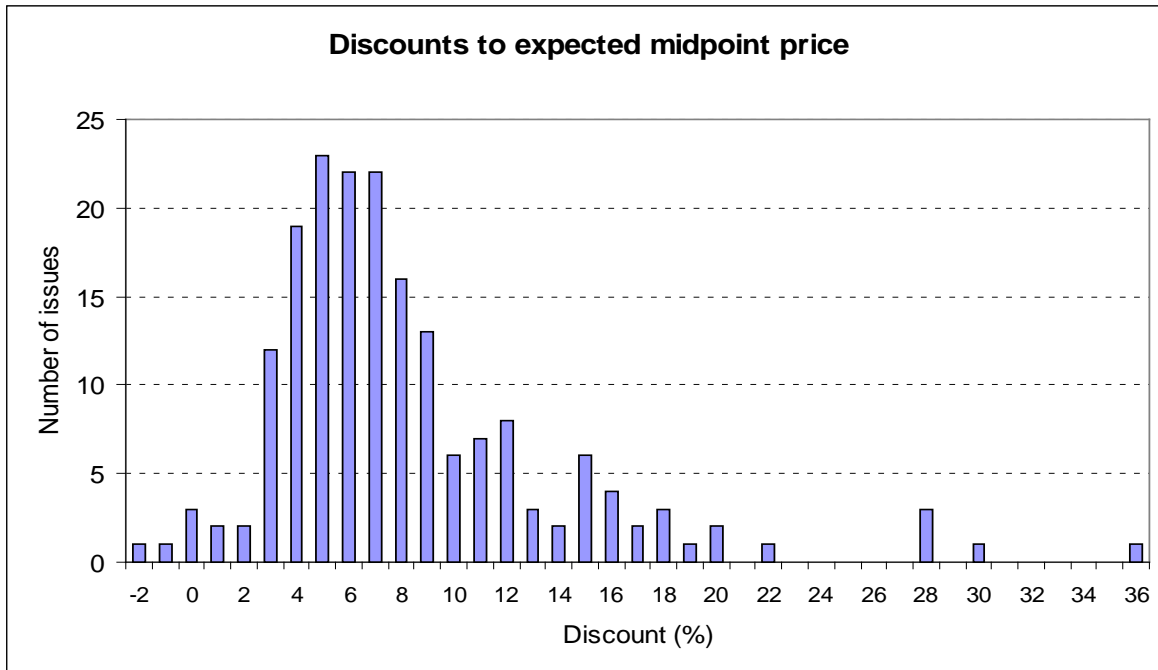


Figure 2

The figure shows average buy-and-hold abnormal returns following issue announcements, calculated as in Table 4.

